# AP3 & AP4

# QUALIFICATION REPORT

## I. INTRODUCTION

The AP3 and AP4 are high dynamic range FETs packaged in a high frequency surface mount package. The combination of low noise figure and high output IP3 at the same bias point makes them ideal for receiver and transmitter applications.

## II. SCOPE

This report summarizes the reliability qualification of the AP3 and AP4 high dynamic range amplifiers manufactured at the WJ Communications facility in Milpitas, CA and assembled in a 3 x 3 Land Grid Array package. The process used is our standard H11, 4-inch process.
The reliability data are obtained through the performance of specified accelerated stress tests described in this document.

## III. APPLICABLE DOCUMENTS

All the test procedures and test methods are consistent with industry standards. The standards referenced in this document are JEDEC standard 22 and MIL STD 883.

## IV. QUALIFICATION TEST PLAN

The AP3 and AP4 are processed using the same process flow and are packaged in the 3x3 LGA package, therefore qualification testing done on one part qualifies the entire family of parts.

| Stress or Test | Device Hours/ Cycles | Sample Size | Failed Units | Date | Reference Document | Part Tested |
|---|---|---|---|---|---|---|
| High Temp Op Life | 96,000 | 96 | 1 | 1999 | JESD22 A108 | AP4 |
| Temperature Cycle | 100,000 | 100 | 0 | 1999 | JESD22 A104 | AP4 |
| Unbiased Autoclave | 9,600 | 100 | 0 | 1999 | JESD22 A102 | AP4 |
| Physical Dimensions | | 15 | 0 | 2000 | JESD22 A108 | AP4 |
| Solderability | | 25 | 0 | 2000 | MS883 M2003 | AP4 |
| Res. To Solvents | | 3 | 0 | 2000 | JESD22 A108 | AP4 |
| Resistance to soldering heat | | 25 | 0 | 2000 | JESD22 B106 | AP4 |
| Gross & Fine Leak | | 100 | 0 | 2000 | MS883 M1014 | AP4 |

## V. DISCUSSION OF RESULTS

1. HIGH TEMPERATURE OPERATING LIFE

96 AP4 parts were tested for High Temperature Operating Life with one failure.

## VI. CONCLUSIONS

The Reliability Qualification Data demonstrates that the AP3 and AP4 amplifiers fabricated at the WJ Communications Milpitas facility and assembled in a 3x3 LGA package demonstrates high reliability and quality levels.